

Business Plan

2016–2017

Department of Energy



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Message from the Minister of Energy

It is an exciting time to be working in Nova Scotia's growing energy sector and we are looking forward to another busy and productive year at the Department of Energy. The following Business Plan outlines our strategy to manage and promote energy resources to achieve optimum economic, social, and environmental value from energy sector. As we do so, developing and using all energy resources in an efficient and sustainable manner remains a priority. We created the province's Electricity Plan to ensure Nova Scotians receive more predictable and stable power rates through improved competition, innovation, and accountability. This 25 year plan will support the province as it moves toward a lower carbon future.

In 2016-17, we will continue to implement the Electricity Plan, allocating funding for innovative projects including solar, energy storage, new ways to better manage our electricity use, and an enhanced net metering program.

Innovation and opportunity propel us as we build on the Offshore Growth Strategy.

Our oil and gas sector holds significant potential for economic growth in our province. Shell Canada's drilling program began in October 2015 with its first well. BP successfully completed its 3-D seismic program in 2014 and attracted partners Hess and Woodside Petroleum on four Nova Scotia offshore deep-water exploration blocks. Its Environmental Assessment is getting underway, and we anticipate its first deep-water well to be drilled in 2018. Recent geoscience insights and marketing efforts have also welcomed new player Statoil and \$82 million in new exploration commitments to our offshore. As we move forward, we will continue to encourage supply chain development for Nova Scotia companies for local and export opportunities.

In February 2016, legislation to increase accountability requirements for companies operating offshore of Nova Scotia came into effect. Environmental liability protections and transparency provisions are improved. Work is also underway to modernize existing, and develop new, offshore regulations to ensure the offshore oil and gas industry continues to use best practices.

Another strategic play for Nova Scotia is the marine renewable energy sector. Last year we introduced legislation to promote and support the development of tidal energy. In 2016-17, our focus will shift to developing regulations to implement the Marine Renewable Energy Act. This Act governs the development of marine renewable energy resources – waves, tidal range, in-stream tidal, ocean currents, and offshore wind – in designated areas of Nova Scotia's offshore.

The department continues to support emerging opportunities related to LNG import and export, and investment in Nova Scotia. Projects identified for Nova Scotia have made progress by gaining multiple regulatory approvals.

Nova Scotia achieved its legislated target of having 25 per cent of our electricity come from renewable sources, and we remain on track to exceed our goal of 40 per cent renewables on the grid by 2020.

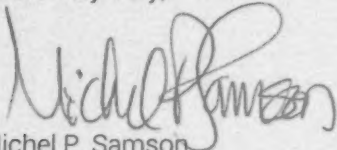
Last year, the department launched new sustainable transportation grant program Connect2, and provided nearly \$600 thousand in funding to 28 community-led projects from Yarmouth to

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Sydney. We look forward to continuing this program in 2016-17 and expanding the benefits to more communities.

We have a lot of work to do in the months ahead as our department strives to grow Nova Scotia's energy economy and capitalize on the economic and social benefits growth brings. We encourage you to read our complete business plan for a fuller understanding of our many initiatives planned for 2016-17.

Yours very truly,

A handwritten signature in dark ink, appearing to read "Michel P. Samson". The signature is fluid and cursive, with the first name "Michel" being more prominent.

Michel P. Samson

Minister of Energy

Departmental Business Plan 2016/17

Departmental Business Plan: Department of Energy

Section 1- Mandate:

The Department of Energy's mandate, as outlined in the Public Service Act is to manage and promote energy resources to achieve optimum economic, social and environmental value from the energy sector.

The Department's mission is to serve the social, environmental, and economic interests of Nova Scotians by ensuring our energy resources are developed and used in an efficient and sustainable manner.

The Department's vision is to be recognized as a collaborative and innovative leader in the transformation of Nova Scotia's energy sector.

The Department's efforts are aligned with four areas of strategic focus:

- A diverse, competitive and cleaner energy economy
- Optimal benefits received from development and use of energy resources
- A substantial and growing offshore petroleum sector
- Socially responsible development of Nova Scotia's energy sector

Section 2- Department's link to government's three priorities:

Priorities, Outcomes and Goals

Innovation

ACTIONS

1. Offshore Growth Strategy

The Offshore Growth Strategy is a four-year initiative to generate new insight about our offshore petroleum geology, attract new investment to our province, and ready our offshore regime and local supply chain to be prepared for increased offshore oil and gas activity. Recent geoscience insights and marketing efforts have resulted in bringing in a new player, Statoil, to our offshore with \$82 million in new exploration commitments.

The geoscience research builds on momentum from the Play Fairway Analysis (PFA) released in 2011 that was instrumental in attracting \$2 billion in exploration work commitments in 2011 and 2012. This research improves the understanding of Nova Scotia's complex petroleum geology to remove some of the risk associated with exploring in this environment.

If exploration efforts lead to new commercial development of oil and gas in the offshore, royalties, crown share payments, and employment and contract opportunities would translate into significant economic benefit to the province.

In addition to geoscience efforts, the Offshore Growth Strategy includes initiatives to optimize economic benefit opportunities from offshore development. This includes undertaking supply chain capacity development work, positioning local companies and workers for offshore opportunities, and leveraging opportunities and joint venture partnerships. Our capacity assessment work involves generating new understanding about the potential opportunities that may result from deep-water exploration in the areas of engineering, manufacturing, fabrication and supply and service. Work is also underway to develop new and modernize existing offshore regulations.

Increasing interest and activity in the offshore may require additional government investment in local capacity building and/or geoscience work to maximize the opportunities for the Province. The Department will assess this opportunity in the coming months.

2. Electricity Reform

The Electricity Plan translates the energy priorities of Nova Scotians into strategies and actions that will deliver rate stability, cleaner energy, and more choice. Achieving that vision requires a more accountable and transparent regulatory system and innovative ways to manage and store renewable energy sources. The result will be a lower carbon future.

Nova Scotia's electricity plan introduces:

- More predictable and stable power rates
- More accountability and a regulatory system that is easier to understand
- Support for technology and innovation
- More competition for electricity generation.

In 2016-17, the Department will continue to implement the changes unveiled in the Electricity Plan, including funding for innovative projects to advance Nova Scotia's ability to test, monitor and learn in the following areas:

- *Community Buildings Solar PV Pilot Program* – will promote installation of solar panels on community buildings such as town halls, fire halls and community centres.
- *Electricity Innovation Pilot Program* – will award funding, on a competitive basis, to research projects focused on energy storage and new ways of managing electricity use. It will also provide sector support for tidal energy development.
- *Net Metering Program* – offers more certainty on modest investments by homeowners, businesses and institutions who wish to supply their own needs and sell surplus power from their renewable sources.

3. Efficiency Programming

The Department promotes energy efficiency and conservation through funding for EfficiencyOne for energy efficiency programs for non-electrically heated homes (e.g. furnace oil, wood, propane or natural gas) to reduce energy use in the province. The Department funds non-electric energy

efficiency programs to ensure that assistance in reducing energy costs is provided to those who need it most through energy efficiency programs designed specifically for low income Nova Scotians. Provincial funding also supports several pilot programs to determine how to implement efficiency programming at a lower long-term cost while improving the effectiveness of efficiency investments.

As well, the Department develops regulations and efficiency standards for products purchased in Nova Scotia.

The Department will continue to implement actions from the long term electricity efficiency and conservation plan "Using Less Energy" released in 2014. Key actions include:

- developing innovative financing options for homeowners and businesses to assist with the upfront cost of major energy efficiency upgrades; and
- Continuous improvement of the minimum energy performance of buildings and products purchased in Nova Scotia.
- Provincial funding is to support more than half a dozen pilot programs to test new ideas on how to implement efficiency programs at a lower long-term cost and how to improve the effectiveness of efficiency investments

4. Marine Renewables

The marine renewable energy sector represents an emerging opportunity for our local supply sector to develop world class in-stream tidal capacity and for new technologies to produce predictable no-carbon electricity. Nova Scotia's efforts to create a world-class sector in the Bay of Fundy for in-stream tidal energy are based upon innovation in research and development initiatives, supply chain development, and leveraging our significant expertise in ocean technology.

Research supports better understanding of the environmental, social, and economic impacts of development—a critical piece as projects are deployed in the coming years. Through continued support to the Offshore Energy Research Association (OERA), the Fundy Ocean Research Center for Energy (FORCE), and other entities, the Province is ensuring that developments and regulatory activities are fully informed by quality, peer-reviewed research and data collection.

The Department supports activities that will enable environmentally sustainable tidal energy projects and supports the development of world-class in-stream tidal expertise in Nova Scotia.

In 2016-17 the Department will develop regulations to implement the Marine Renewable Energy Act. The Act governs the development of marine renewable energy resources— waves, tidal range, in-stream tidal, ocean currents, and offshore wind—in designated areas of the Nova Scotia offshore.

5. Sustainable Transportation

The Department of Energy leads an inter-departmental partnership to continue to implement the Province's sustainable transportation strategy "Choose How You Move". This work covers five main areas: active transportation, public and community transit, land-use planning, vehicle and fleet efficiency, and community engagement.

The Department of Energy has created a new grant program "Connect2" as an innovative approach to advance active transportation connections. Connect2 is based on a vision that all trips under two kilometers to key community destinations in rural and urban areas of Nova Scotia could be made using sustainable modes of transportation. The program seeks to support collaborative, innovative, and locally-based solutions to improving connectivity in rural and urban communities across Nova Scotia (e.g. hospitals, universities, schools, and business districts).

Choose How You Move priorities include:

- Managing the Connect2 grant program;
- Encouraging sustainable transportation behavior by initiating, supporting, and promoting various programs;
- Support for development of the Blue Route, a provincial bicycle network;
- Support for collecting data on sustainable transportation indicators;
- Improving government's internal practices around sustainable transportation with a focus on the inclusion of active transportation considerations in land use planning; and
- Partnering with Municipal Affairs on the completion of the Statement of Provincial Interest on healthy communities.

6. Engagement and Consultation

If we are to see the energy sector grow, mature, and bring sustainable, economic benefits and energy diversity to our province, we must work with Nova Scotians to build trust in our regulatory systems and resource management oversight. Public engagement and awareness building is an essential part of this process, and are necessary for energy developments from large-scale commercial operations to small, community-based projects to co-exist with communities.

The Department of Energy is fully committed to consulting and working collaboratively with the Mi'kmaq of Nova Scotia in the development of the energy sector. The Department will continue to improve its relationship with the Mi'kmaq of Nova Scotia, fulfill and integrate the duty to consult with the Mi'kmaq in decision making processes, and support Mi'kmaq participation in the energy sector.

INPUTS

To support innovation, the department will allocate the following in 2016-17.

	Financial Resources	Human Resources
Offshore Growth Strategy	\$3,450,000*	6.5 FTEs
Electricity Reform and Innovation Funding	\$410,000	5 FTEs

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Efficiency Programming	\$12,179,000	3 FTEs
Marine Renewables	\$220,000	5.5 FTEs
Sustainable Transportation	\$825,000	1 FTEs

* Total 4-year government commitment is \$12 million.

Performance Measures

Offshore Growth Strategy

The Offshore Growth Strategy is focused on long-term development of our offshore oil and gas industry. While growth is a long-term goal, incremental measures indicate the initiative is building momentum.

	2010	2011*	2012	2013	2014	2015**
No. of New Operators	X	1 (Shell)	1 (BP)	X	X	1 (Statoil)
No. of new industry partners	X	X	X	X	4 (ConocoPhillips, Suncor, Hess, Woodside)	X
Response to Call for Bids (in \$\$ of exploration work committed)	\$0	\$970M	\$1.1B	\$0	\$0	\$82M

*Results of new geoscience (2011 Play Fairway Analysis) released

** Results of Offshore Growth Strategy geoscience efforts supported marketing efforts for the 2015 Call for Bids and resulted in new investment

Electricity Reform

The performance measures associated with the reforms announced in the Electricity Plan have yet to be finalized as implementation is still in development or are not yet applicable. Stable electricity rates will be a primary metric starting in 2017.

Efficiency Programming

The Department of Energy provides funding to EfficiencyOne for energy efficiency programs for non-electrically heated homes (e.g. furnace oil, wood, propane or natural gas) to reduce energy use in the province. The non- electricity programs are divided into two categories: low income and non-low income programs. Data for these measures is supplied by EfficiencyOne. EfficiencyOne also provides energy efficiency programs for electrically heated homes; these are funded through other mechanisms and not by the Department of Energy.

Gigajoule (GJ) is a metric term used for measuring energy use and our goal is to decrease per capita energy consumption. According to Statistics Canada an average four person household in Nova Scotia uses approximately 103 GJ of energy annually compared to the national average of 127 GJ, based on 2011 data.

Efficiency Programs					
	2011-12	2012-13	2013-14	2014-15	2015-16 Target
Total PNS Funding	\$7.2 M	\$19.15 M	\$21.1 M	\$18.99 M	\$12.77 M
Total GJ Saved	106,745	239,363	180,755	194,199	55,291
Total # participants	6,278	15,856	14,778	15,259	4,945

*2015-16 targets for GJ and #participants represent Low-income programs only. \$600,000 of the \$12.77M budget will be used to run pilot programs.

Marine Renewables

	2014-15	2015-16	2016-17
Tidal projects Developments			
Feed-in Tariff Approvals	4 (FORCE)		
COMFIT approvals	3 (Digby)		
Deployments			2 (estimate)

Sustainable Transportation

	2014-15	Target 2016-17
Mode share for commuting in NS (Baseline = 2011)	Bicycle: 1%* Public Transit: 7%* Public Transit (Hfx only): 12.5%*	Increase % Continue DalTRAC data collection
Kms of designated bike lanes	129 km	Attain increase in kms
Kms of commuting grade trails	786 km	Attain increase in kms

*2011 data

Education

ACTIONS

Pengrowth-Nova Scotia Energy Scholarship Program

The Pengrowth-Nova Scotia Energy Scholarship Program is a unique partnership between the oil and gas industry and the Province. It offers funding to trades and technology, and university undergraduate and Master-level students throughout Nova Scotia to pursue energy-related studies. Since its inception, the program has supported more than 200 students and researchers with more than \$1 million in funding. By providing scholarships to students pursuing energy-related studies at both universities and the Nova Scotia Community College, the Pengrowth-Nova Scotia Energy Scholarship Program helps students develop the skills and knowledge they need to become leaders in the energy sector.

Energy Training Program

The Energy Training Program develops the energy workforce in Nova Scotia by encouraging private sector employers to hire post-secondary students for career-related work terms. The program offers a wage subsidy for a term employment to employers hiring students and new graduates from Nova Scotia universities and community colleges. Employers benefit from a proven, cost-effective way to enhance short-term productivity and develop long-term recruiting solutions. Post-secondary students and recent graduates contribute to the energy industry while gaining valuable skills and experience that will enable them to become part of a highly skilled workforce in the energy sector.

INPUTS

To support education, the department will allocate the following in 2016-17.

	Financial Resources	Human Resources
Pengrowth-Nova Scotia Energy Scholarship Program	\$0 for 2016-17*	0.9 FTE
Energy Training Program	\$100,000	0.25 FTE

*Trust funded through provincial/industry partnership

Performance Measures

	2014	2015
Pengrowth-Nova Scotia Scholarship		
No. of students receiving scholarships	16	16
No. of students receiving grants	1	1
Percentage of recipients working in the Energy Sector	70%*	
Energy Training Program		
Student placements (2015)	19	19
Percentage of students retained beyond wage subsidy period	35%	

*Based on a small sample size.

Section 3 – Core Responsibilities/Services

Department Core Services, Outcomes and Goals –

ACTIONS

Joint Management of Offshore Petroleum Resources

Offshore oil and gas activity is jointly managed by the Province of Nova Scotia and the Government of Canada through legislation, regulation, and policy. The Department of Energy works with Natural Resources Canada and the Canada-Nova Scotia Offshore Petroleum Board to ensure that the exploration and development of Nova Scotia's offshore oil and gas resources are responsibly managed.

Work is underway to develop and modernize offshore regulations, to support competitiveness, continued growth and contribution to the provincial economy as well as ensure rigorous standards for safety, environmental protection and management of resources. This regulatory work is conducted by the Frontier and Offshore Regulatory Renewal Initiative, and involves federal and provincial governments and offshore regulators to collaboratively review and modernize oil and gas regulations in all of Canada's offshore areas.

Onshore Oil and Gas

The Nova Scotia Department of Energy administers onshore petroleum rights as set out in the Petroleum Resources Act and Regulations. In 2016-17, work will continue to modernize onshore oil and gas regulation to ensure that industry continues to use best practices, particularly as new technologies continue to be developed.

Work will continue to complete the Onshore Atlas, a two-year initiative to improve our geoscience knowledge of our onshore. The Atlas will improve data accessibility, usability and glean new insight from our current onshore geology data sources. Data and findings will be available to industry and others with an interest in our onshore petroleum resources. As new information becomes available, the Onshore Atlas will be amended and expanded to remain current.

Liquefied Natural Gas (LNG)

The Department is supporting emerging opportunities related to LNG export and investment in Nova Scotia given their potential for economic benefits.

While the Department does not control major factors impacting industry decisions (e.g. international markets, access to gas supply, expansion and construction of pipeline systems), a LNG project or projects could increase investment in the offshore and result in significant construction and long term employment and contracting. Work will continue to examine the economics of additional gas development and exploration opportunities for natural gas prospects offshore. This analysis will be presented and discussed with investors, purchasers, pipeline companies, and gas suppliers.

Industry and Supply Chain Development

Recognizing that the energy sector is an important driver of economic activity in the province, the Department strives to optimize private sector business opportunities for Nova Scotian firms in the energy sector: oil and gas, marine renewables, and other sustainable and renewable energy. Benefits are seen through local employment, expenditures for goods and services for NS projects, building expertise and capacity in the supply chain to participate in international projects competitively capturing export opportunities, and differentiating Nova Scotian product and service offerings via the commercialization of research. The Department gathers market intelligence and engages with project developers/operators to understand global supply chain opportunities, and works to build capacity among businesses to ensure they are well informed, able to respond to and compete for contracts, and leverage opportunities to build relationships with potential clients, partners and suppliers.

The scale of success can be considerable. Overall expenditures in the province for oil and gas exploration and development are typically hundreds of millions of dollars each year, with Nova Scotian employment exceeding a million person hours. Offshore petroleum activity is expected to grow, resulting in significant opportunity. Tidal energy research and development allows Nova Scotia to develop its unique tidal energy potential and enhance its existing ocean technology expertise. Research indicates that significant goods and services are required for NS tidal projects that can be procured locally, and many goods and services are suitable for export. Tidal energy is an emerging sector on a global scale, which positions the Nova Scotia supply chain as a potential leader in the global marine renewable energy sector. The Department is working with the tidal sector to help achieve this goal.

Fiscal Management – Oil and Gas Royalties

The Department is responsible for monitoring energy projects to ensure appropriate economic benefits are collected from the development of offshore petroleum resources. The administration and auditing of oil and gas royalties and Crown Share Adjustment¹ payments contributes millions of dollars directly to the provincial treasury. The Department ensures the province's royalty regime reflects modern best practice and strikes a balance between attracting investment and provide a fair return to Nova Scotians.

While offshore revenues are not currently experiencing growth, offshore activities still provide fiscal benefits to the province. In 2014-2015 the province reported \$19.5 million in royalties. Since 2000, \$1.6 billion offshore royalties have been received.

INPUTS

	Financial Resources	Human Resources
Joint Management of Offshore Petroleum	\$60,000	2.6 FTEs
Onshore Oil and Gas	\$250,000	3.5 FTEs
LNG	\$40,000	1.3 FTEs
Industry Supply Chain Development	\$442,000	3 FTEs
Fiscal Management	\$10,000	2.25 FTEs

¹ Crown Share Adjustment is a federal payment to the province to compensate Nova Scotia for offshore rights lost when the National Energy Program was cancelled.

Energy Expenses Summary
(\$ thousands)

Programs and Services	2015-2016 Estimate	2015-2016 Forecast	2016-2017 Estimate
Office of the Minister / Deputy Minister	450	507	404
Administrative Services	1,683	1,552	1,614
Sustainable & Renewable Energy	1,917	2,185	2,345
Business Development & Corporate Services	3,099	3,010	2,899
Petroleum Resources	4,846	5,014	4,852
Canada-Nova Scotia Offshore Petroleum Board	3,965	4,040	4,488
Non-Electricity Energy Efficiency, Sustainable Transportation and Conservation Grants	14,200	13,830	12,995
Total - Departmental Expenses	30,160	30,138	29,597
 Ordinary Recoveries	 2,533	 2,814	 3,096
 Funded Staff (# of FTEs)			
Department Funded Staff	57.2	56.2	56.5

Notes:

Ordinary Revenues: See Estimates and Supplementary Detail Book, Chapter 2